

In the Claims

The claims have been amended as follows:

- 1 1. (Currently Amended~~original~~) A photomask material comprising:
 - 2 a mask blank in the form of a transparent substrate;
 - 3 an opaque layer directly over and contacting the transparent substrate;
 - 4 a metal layer directly over and contacting the opaque layer;
 - 5 a resist layer directly over and contacting the metal layer having a thickness
 - 6 ranging from about 1000 Å to about 2000 Å to provide for improved achievable
 - 7 minimum resolution on the photomask.

- 1 2. (original) The photomask material of claim 1 wherein the transparent
 - 2 substrate is made of a material selected from the group consisting quartz, glass,
 - 3 silica glass, polysilicate glass, soda glass, and thin membrane materials made of
 - 4 silicon, SiN, SiC and diamond.

- 1 3. (Currently Amended~~original~~) The photomask material of claim ~~1~~2 wherein
 - 2 the opaque layer comprises a chrome-based material selected from the group
 - 3 consisting of chrome and Cr:O:N.

1 4. (Currently Amended~~original~~) The photomask material of claim ~~4~~3 wherein
2 the metal layer comprises a material selected from the group consisting of
3 tungsten, tungsten-silicon, tantalum, and tantalum-silicon,~~and copper~~.

1 5. (Currently Amended~~original~~) The photomask material of claim 4 wherein
2 the metal layer has a thickness ranging from about 20 Å to about 600~~100~~ Å.

1 6. (Cancel.)

1 7. (Cancel.)

1 8. (Currently Amended~~original~~) A photomask material comprising:
2 a transparent glass substrate;
3 a chrome-based layer directly over and contacting the transparent glass
4 substrate;
5 a copper metal layer ~~comprising a material selected from the group consisting~~
6 ~~of tungsten, tungsten-silicon, tantalum, tantalum-silicon, and copper~~ directly
7 over and contacting the chrome-based layer; and
8 a resist layer directly over and contacting the copper metal layer.

1 9. (original) The photomask material of claim 8 wherein the chrome-based
2 layer comprises a material selected from the group consisting of chrome and
3 Cr:O:N deposited to a thickness ranging from about 700 Å to about 1200 Å.

1 10. (Cancel.)

1 11. (Currently Amended~~original~~) The photomask material of claim 9 wherein
2 the copper ~~metal~~ layer comprising a material selected from the group consisting of
3 ~~tungsten, tungsten silicon, tantalum, tantalum silicon, and copper~~ and is deposited
4 to a thickness ranging from about 100 Å to about 600 Å.

1 12. (Currently Amended~~original~~) The photomask material of claim 11~~9~~
2 wherein the resist layer has a thickness ranging from about 1000 Å to about 2000
3 Å to provide for improved achievable minimum resolution on the photomask.

1 13. (Currently Amended~~original~~) A method of manufacturing a photomask
2 comprising:
3 providing a transparent substrate;
4 depositing an opaque layer directly over and contacting the transparent
5 substrate;
6 depositing a metal layer directly over and contacting the opaque layer to a
7 thickness ranging from about 20 Å to about 600 Å;

8 ~~depositing~~coating a resist layer over the metal layer having a thickness ranging
9 from about 1000 Å to about 2000 Å ;
10 imaging the resist layer to form a resist mask pattern thereby exposing portions
11 of the metal layer;
12 etching the exposed portions of the metal layer using a first etchant that etches
13 the metal layer faster than the underlying opaque layer to create a metal
14 layer image; and
15 transferring the metal layer image into underlying exposed portions of the
16 opaque layer using a second etchant that etches the opaque layer faster
17 than the metal layer to form a photomask in the opaque layer, whereby the
18 thickness of the resist layer provides for improved achievable minimum
19 resolution, image quality and critical dimension uniformity of the
20 photomask.

1 14. (original) The method of claim 13 further comprising after transferring the
2 metal layer image into the underlying opaque layer, removing any remaining metal
3 layer.

1 15. (original) The method of claim 13 wherein the opaque layer comprises a
2 chrome-based material selected from the group consisting of chrome and Cr:O:N
3 deposited to a thickness ranging from about 700 Å to about 1200 Å.

1 16. (Currently Amended~~original~~) The method of claim 13 wherein the metal
2 layer comprises a material selected from the group consisting of ~~tungsten,~~
3 ~~tungsten-silicon,~~ tantalum, tantalum-silicon, and copper ~~deposited to a thickness~~
4 ~~ranging from about 100Å to about 600Å.~~

1 17. (Cancel.)

1 18. (Cancel.)

1 19. (Cancel.)

1 20. (original) The method of claim 13 wherein the step of etching exposed
2 portions of the metal layer to form the hard mask image comprises etching the
3 metal layer using an etchant which is highly selective to the metal layer whereby
4 the etchant removes only the metal layer and leaves the underlying opaque layer
5 intact.

Please add new claims 21-24 as follows:

1 21. (New.) The photomask material of claim 5 further including an adhesion
2 promoting layer between the metal layer and the resist layer.

1 22. (New.) The photomask material of claim 21 wherein the adhesion
2 promoting layer comprises Hexa-methyl-disilizane.

1 23. (New.) The photomask material of claim 8 further including an adhesion
2 promoting layer between the metal layer and the resist layer.

1 24. (New.) The method of claim 13 further including depositing an adhesion
2 promoting layer between the metal layer and the resist layer.